



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2015-0277; Directorate Identifier 2015-NE-05-AD]

RIN 2120-AA64

Airworthiness Directives; CFM International S.A. Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for certain CFM International S.A. (CFM) CFM56-7B series turbofan engines. This proposed AD was prompted by reports of uncommanded in-flight shutdowns (IFSDs) on CFM CFM56-7B engines following rupture of the 73-tooth gearshaft located in the engine accessory gearbox (AGB). This proposed AD would require magnetic chip detector (MCD) inspection of the affected gearshafts until removal. We are proposing this AD to prevent failure of certain engine AGB gearshafts, which could lead to failure of one or more engines, loss of thrust control, and damage to the airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this AD, contact CFM International Inc., Aviation Operations Center, 1 Neumann Way, M/D Room 285, Cincinnati, OH 45125; phone: 877-432-3272; fax: 877-432-3329; email: aviation.fleetsupport@ge.com. You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-0277; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Kyle Gustafson, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7183; fax: 781-238-7199; email: kyle.gustafson@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2015-0277; Directorate Identifier 2015-NE-05-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

We have received reports of uncommanded IFSDs on CFM CFM56-7B engines following rupture of the 73-tooth gearshaft located in the engine AGB. CFM has identified an affected population of 73-tooth gearshafts that show premature wear on the teeth due to inadequate shot peening. In the process of its investigation, CFM identified an additional population of 41-tooth gearshafts that is subject to the same premature wear. The affected population of 73-tooth and 41-tooth gearshafts exhibit a surface finish that leads to loss in oil film effectiveness, causing micro-pitting which eventually leads to material separating from the gearshaft and its eventual failure.

The proposed AD requires enhanced MCD inspection until removal of the gearshaft. This enhanced inspection requires that any material, including fuzz, be sent to the particles lab for analysis to determine the source of the material. We are allowing affected engines to continue to operate for 75 flight hours (FHs) after the MCD

inspection to provide sufficient time to determine the source of the material and to remove the affected gearshaft if the particles lab analysis finds that the source of the material is from an affected 73-tooth or 41-tooth gearshaft. The enhanced MCD inspection and particles lab analysis is repeated every 500 FHs after the initial MCD inspection until the affected gearshaft is removed from service. This condition, if not corrected, could result in failure of certain engine AGB gearshafts, which could lead to failure of one or more engines, loss of thrust control, and damage to the airplane.

Relevant Service Information under 1 CFR part 51

We reviewed CFM Service Bulletin (SBs) CFM56-7B S/B 72-0964, Revision 1, dated December 15, 2014, and CFM56-7B S/B 72-0965, dated December 16, 2014. The SBs describe procedures for removal of affected 73-tooth and 41-tooth gearshafts. This service information is reasonably available; see ADDRESSES for ways to access this service information.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would require an MCD inspection within 250 FHs since last inspection or within 25 FHs after the effective date of this AD, whichever comes later. The proposed AD would also require that the MCD inspection be repeated every 500 FHs after the initial MCD inspection until removal of the affected gearshaft. The proposed AD would also require as terminating action that the affected gearshafts be removed.

Differences Between this Proposed AD and the Service Information

This proposed AD would require an MCD inspection 250 FHs since last inspection or within 25 FHs after the effective date of this AD, whichever comes later.

CFM SB CFM56-7B S/B 72-0964, Revision 1, dated December 15, 2014, recommends performing a MCD inspection 250 FHs since last inspection or as soon as possible if the inspection was done more than 250 FHs ago.

In this proposed AD, we are not requiring that operators send the particles to CFM for analysis. We are, however, requiring that operators determine if the particles are 73-tooth gearshaft or 41-tooth gearshaft material. CFM56-7B S/B 72-0964 recommends that if any magnetic particles, including fuzz are seen, operators send the inspection results and lab analysis to CFM for disposition.

Costs of Compliance

We estimate that this proposed AD would affect about 67 engines installed on airplanes of U.S. registry. We also estimate that it would take about 1 hour per engine to do the inspection and 8 hours per engine to replace each affected gearshaft. We estimate thirty-six 73-tooth gearshafts and forty 41-tooth gearshafts will need replacement at a cost of \$12,480 and \$7,680 per part, respectively. The average labor rate is \$85 per hour. Based on these figures, we estimate the cost of the proposed AD on U.S. operators to be \$813,855.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority

because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

CFM International S.A.: Docket No. FAA-2015-0277; Directorate Identifier 2015-NE-05-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

(b) Affected ADs

None.

(c) Applicability

This AD applies to CFM International S.A. (CFM) CFM56-7B engines with accessory gearboxes (AGBs), with 73-tooth gearshafts or 41-tooth gearshafts, identified in Appendix A and Appendix B of CFM Service Bulletin (SB) CFM56-7B S/B 72-0964, Revision 1, dated December 15, 2014.

(d) Unsafe Condition

This AD was prompted by reports of uncommanded in-flight shutdowns on CFM CFM56-7B engines following rupture of the 73-tooth gearshaft located in the engine AGB. We are issuing this AD to prevent failure of certain AGB gearshafts, which could lead to failure of one or more engines, loss of thrust control, and damage to the airplane.

(e) Compliance

Comply with this AD within the compliance times specified, unless already done.

(1) Initial Magnetic Chip Detector (MCD) Inspection and Analysis

(i) For affected 73-tooth gearshafts, perform an MCD inspection within 250 flight hours (FHs) since last inspection, within 25 FHs from the effective date of this AD, or when the gearshaft accumulates 3,000 FHs since new, whichever comes later.

(ii) For affected 41-tooth gearshafts, perform an MCD inspection within 250 FHs since last inspection, within 25 FHs from the effective date of this AD, or when the gearshaft accumulates 6,000 FHs since new, whichever comes later.

(iii) If any magnetic particles, including fuzz, are seen, determine with particles lab analysis if the particles are 73-tooth or 41-tooth gearshaft material.

(iv) If the particles are 73-tooth or 41-tooth gearshaft material, remove the affected gearshaft(s) within 75 FHs since the MCD inspection.

(2) Repetitive MCD Inspection and Analysis

(i) For affected 73-tooth gearshafts, perform an MCD inspection and particles lab analysis within every 500 FHs since the last MCD inspection until affected gearshaft is removed.

(ii) For affected 41-tooth gearshafts, perform an MCD inspection and particles lab analysis within every 500 FHs since the last MCD inspection until affected gearshaft is removed.

(iii) If any magnetic particles, including fuzz, are seen, determine with particles lab analysis if the particles are 73-tooth or 41-tooth gearshaft material.

(iv) If the particles are 73-tooth or 41-tooth gearshaft material, remove the affected gearshaft(s) within 75 FHs since the MCD inspection.

(f) Mandatory Terminating Action

(1) Remove the affected 73-tooth gearshaft prior to the gearshaft accumulating 6,000 FHs since new or within 50 FHs after the effective date of this AD, whichever comes later.

(2) Remove the affected 41-tooth gearshaft prior to the gearshaft accumulating 9,000 FHs since new or within 50 FHs after the effective date of this AD, whichever comes later.

(g) Installation Prohibition

After the effective date of this AD, do not install an affected gearshaft into an AGB.

(h) Alternative Methods of Compliance (AMOCs)

The Manager, Engine Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request. You may email your request to: ANE-AD-AMOC@faa.gov.

(i) Related Information

(1) For more information about this AD, contact Kyle Gustafson, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7183; fax: 781-238-7199; email: kyle.gustafson@faa.gov.

(2) CFM SBs CFM56-7B S/B 72-0964, Revision 1, dated December 15, 2014, and CFM56-7B S/B 72-0965, dated December 16, 2014, can be obtained from GE using the contact information in paragraph (i)(3) of this proposed AD.

(3) For service information identified in this AD, contact CFM International Inc., Aviation Operations Center, 1 Neumann Way, M/D Room 285, Cincinnati, OH 45125; phone: 877-432-3272; fax: 877-432-3329; email: aviation.fleetsupport@ge.com.

(4) You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on April 17, 2015.

Thomas A. Boudreau,
Acting Manager , Engine & Propeller Directorate,
Aircraft Certification Service.

[FR Doc. 2015-09930 Filed: 4/30/2015 08:45 am; Publication Date: 5/1/2015]